

MINOR CHANGES IN 1921 MARMON 34

Eight Models, Four Open and
Four Closed, Made This
Year.

The Marmon of 1921 differs only in minor changes and improvements from the Marmon of 1920, with high efficiency motor, which made its first appearance at the New York show last year.

Those features of design and construction which make the Marmon 34 distinctive are maintained. Five years' experience has but increased the conviction that these points should continue to be emphasized. As in the past years, therefore, the 1921 Marmon has the distinctive deep Z shape frame with running board riveted to the lower edge. Wire wheels, special type near axle, and double compound cross-axle springs are continued. Even more aluminum is used throughout the chassis and body than formerly. The frame, the wire wheels and the use of aluminum all mean light weight; the goal of automotive design.

Only in small details has the high efficiency motor been changed. The six cylinder valve-in-head engine is continued, with the shimless bearings this caused no much comment last year. There is the force feed oiling system, the large size crankshafts, the two piece piston (aluminum head and iron skirt), perfectly balanced connecting rods and dry multiple disc clutch. To insure the most effective use of present day fuel refinements and improvements have been made in the 1921 series Marmon fuel system. A new hot ring has been designed with an offset made in such a manner that the unvaporized fuel as it leaves the carburetor strikes the top wall of the ring. The fuel striking this hot wall with the impact that it does is readily vaporized. However, a good deal of the fuel which follows the manifold walls is in an unvaporized form. Most of this fuel runs down the manifold walls to rings in the hot spot and is trapped there until vaporized.

Through the actual machining and assembling of parts of the motor and other major units, rigid and severe standards are maintained. The basis of the entire inspection system, assuring positive accuracy to one ten-thousandth of an inch, are the famous Johanson blocks. Every machine, tool, jig and fixture in the entire plant is inspected thoroughly every half hour. Every part of the engine goes through an inspection after every distinct operation on that part.

With the unceasing vigilance throughout the machining the engine when completely assembled is, one might suppose, ready for placing in the chassis. But in reality it is merely on the threshold of its testing.

As a first step it passes through seven hours of dynamometer tests. For an hour the engine is turned over by an electric motor at the rate of 700 revolutions per minute. Then it is fired for five minutes, idling at 750 revolutions per minute. There follows a long run of five hours and forty minutes, firing at 750 revolutions per minute at five horse power. This practically insures a glazed surface for cylinder walls and pistons. This run is succeeded by six periods of five minutes each at varying

Gardner on View at Commodore.



The ambition and aim of the men behind the Gardner light four is to make it the best known and most popular automobile in America, and therefore in the civilized world, according to Russell E. Gardner, Jr., vice-president for sales of the Gardner Motor Company, Inc., who is here with the exhibit of the Gardner light four in the lobby of Hotel Commodore.

"It's a pretty stiff task we have set for ourselves," Mr. Gardner said.

"We do not view it as an impossible achievement, however. Our distribution system embraces pretty nearly every State in the Union, including distributors with territorial franchises and dealers. Each of these is a leader in his field. Building of this domestic system began long before the appearance of our first car on the market, and the process will continue until every corner of the country is covered."

"During the last six months we have been giving a great deal of care to the foreign field, and a score or more of countries are being made intimately acquainted with the Gardner car. Reports from each of these countries encourage us to believe that the same degree of success that has been achieved by us

speeds and horse power up to 1,450 revolutions per minute and thirty-five horse power. After a final idling with spark retarded and then advanced the test of seven hours and fifteen minutes is completed.

This test over, the engine is taken to a glass enclosed dustproof room, where it is completely disassembled and all the parts are thoroughly cleaned with gasoline. There follows an exhaustive inspection, following closely the report of the log. All questioned parts or parts that seem as if they might become defective are replaced; the inspection is completed and the entire process of painstaking assembling is repeated.

The reassembled engine is again placed on the dynamometer blocks and put through its paces for two hours. Another comprehensive report is made. In this manner before the engine reaches the chassis it is subjected to two rigid examinations with a complete tear down, inspection and rebuild.

Once in the chassis the engine gets its final grind. A skilled mechanic and expert driver takes the car in hand, adjusts the valves and carburetor and takes the car on a fifty mile test run. The tester checks up on every conceivable point, and the chassis receives final adjustments on the basis of his report.

The chassis receives its fourth body coat, is tested for another fifteen miles and then the body and chassis are ready for the final paint. After which it is subjected to another five mile run.

in the domestic field will be realized abroad.

"When our family name was given to the car it was with the full determination to live up to the responsibility it carried. For more than thirty years that name had been established in the industrial world as a synonym for honesty and integrity both in the product and the marketing of it. To sustain that reputation meant a car that fulfilled every expectation resting upon our promise for it, and then to stand every transaction in it must be one satisfactory to the buyer."

"Our main concern was to design and produce a car to which we would be satisfied to give the family name. That has been done, so far as we have been able to ascertain from every test that has been applied, by ourselves and others, and from its record in the hands of individual owners. We still are utilizing engineering science to discover possible betterments. In short, we are going to have the best automobile in its class that we can design and produce."

The exhibit of the Gardner light four is in the main lobby of Hotel Commodore.

TWO SEDANS ADDED TO STEPHENS LINE

Four and Seven Passenger
Closed Cars Complete Salient
Six Exhibit.

The Stephens Motor Works of the Moine Plow Company comes to the fore at this year's automobile show with the announcement and display of two distinctive closed car models, four passenger and seven passenger sedans.

These two models are the newest members of the extensive Stephens salient six line. Of striking design, these new closed models have made a decided appeal to show visitors. In the designing of these new closed car models the builders have striven for not only distinctiveness, style and comfort, but for those sturdy, enduring, dependable qualities so desirable in a car of this character.

Only the very finest steels have been used. Each alloy has been specially selected for the particular purpose it is to serve. This harmony of car parts has resulted in a practically perfect car balance, which spells car endurance, strictest economy in tire wear and freedom from strains to which the improperly balanced car is subjected.

Provision for maximum comfort is found in such details as the slant of the footboards to rest the feet at just the right angle, the seat cushions tilted in European fashion, the large, wide doors and unusual room in both front and rear compartments.

These new closed cars are equipped with heaters, and refinements that mean so much to the motorist are found in the instruments and fittings, in the exclusive Stephens extra tire carrier, the slanting rain vision windshield and other features.

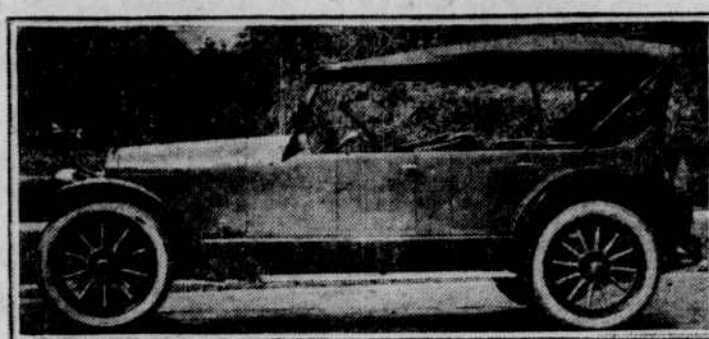
The four passenger sedan, designed to meet a coupe demand that heretofore has been ignored, is known as the model 93 Stephens, and the seven passenger as the model 95. It is a close coupled, low hung job that seats four persons comfortably without resorting to emergency seats. The new models are mounted on the regulation Stephens 12 inch chassis and are powered by the Stephens perfected overhead valve engine, whose six cylinders develop 57 horse power at 2,600 revolutions per minute.

An important item in connection with this engine is the large vaporization wall and superheating chamber located in the head of the engine. This gives perfect vaporization of fuel, dries and heats the gas to high temperature, resulting in quicker ignition, and the reduction of the carbon evil to the minimum due to the complete burning of each charge.

This feature, Stephens engineers claim, gives not only a maximum of power but of economy as well and accounts to a large degree for the unusual performance of this motor.

The sedan models sound a new high note in closed car comfort and elegance. No detail has been overlooked apparently that will add to the comfort of either driver or passengers. Show visitors have been quick to evidence their admiration of these new cars.

Trim Templar Sportette.



AUTO PREVENTS CONGESTION.

Housing Shortage Would Be Serious Without Motor Transportation.

M. Eckhart, president of the Auburn Automobile Company of Auburn, Ind., calls attention to a phase of automobile utility that is not generally recognized. Speaking of the relation of the automobile to the nationwide problem of housing shortage, Mr. Eckhart says:—

"It is not generally recognized how great a factor the automobile has become in solving the housing problem in congested districts. Many areas that have become overpopulated have forced people to move out to distant suburbs, which, although they afford pleasant surroundings, are more or less inaccessible. In such cases the automobile offers an excellent solution of this problem, enabling people to live in pleasant suburbs and at the same time be within easy reach of their businesses."

A recent survey made by the National Automobile Chamber of Commerce shows that 27 per cent. of the car owners of the country, approximating 2,300,000 families, and the automobile a great help in this situation. Because of the late war conditions the railroad and surface line facilities have not kept pace with growth in population. Had it not been for the automobile the problem of housing shortage would be a much more acute one. Over 62 per cent. of the car owners report that they use their motor vehicles instead of travelling by rail or electric line.

AUTO BUILDERS COOPERATE.

Team Work of Men Like Elmer Apperson Helped Industry.

The cooperation among automobile manufacturers has caused other industries to look enviously for the secret that permitted such fellowship among competitors.

In the very early days of the industry manufacturers of motor cars together with the accessory manufacturers formed an association to promote popular interest and confidence in the then new method of travel.

Of these pioneers probably none has won a deeper place in the hearts of his fellows or achieved a more enviable record than Elmer Apperson, whose presence is missed this year for the first time in the history of the national automobile shows. It will be remembered that Mr. Apperson passed away while in attendance at the automobile races at the Los Angeles speedway March 23 last.

Back in 1906 at Madison Square Garden, in company with S. F. Davis, Jr., Walter C. Baker, Charles Duryea, Alexander Walton and others, Elmer Apperson was active in the first efforts toward the organization of the National Association of Automobile Manufacturers. The outcome of this association in the present day National Automobile Chamber of Commerce, which makes possible the present relationship between automobile manufacturers and has made possible the present standing of the automobile industry.

FREAK DESIGNS ARE AVOIDED BY H. C. S.

Harry C. Stutz, Manufacturer,
Believes in Fixed Engineering Policy.

Staple engineering practice and a continued use of proved units characterize the automobile building policy of Harry C. Stutz, well known engineer and manufacturer, who is exhibiting a new series of H. C. S. cars at the Astor Hotel.

"I attribute what success I have made in the automobile industry to the fact that my associates and I have never been stampeded into accepting freak engineering practices from year to year in order to get wider production expansion and increased sales of cars," said Mr. Stutz in discussing the fact that the H. C. S. Motor Car Company, of which he is the president, had had an unusually busy year during 1920 despite the sub-normal business conditions which prevailed throughout the industry.

"I can best explain our attitude in this respect by calling attention to the H. C. S., which shows throughout the result of a fixed engineering and manufacturing policy."

"In the first place, the H. C. S. for 1921 is identical with the H. C. S. for 1920—that is, mechanically. I do not wish to infer that we do not believe in changing our car when good judgment dictates changes that will make our product a better car and a better value if possible."

"Our selection of the units and equipment that go to make up the H. C. S. of today has been based on experience and a thorough knowledge of the trade conditions. This has been proved by the H. C. S. during the last twelve months. "However, we feel that the most important part of our policy of manufacturing lies in the fact that we can keep up a continuous even production, which is not only beneficial to the factory but is also appreciated by our dealers, who can figure definitely from month to month what their shipments will be."

HUMPHREY WELL EQUIPPED.
The familiar rubber windshield cleaner, universally acknowledged as a rainy weather necessity, is standard equipment on the Humphrey, as are motor-driven doors and easily adjustable headlights, making pleasant night driving in any bad weather. The car maintains a distance of fifty feet when backing.

SWINGS AROUND BIG CIRCLE.
During the last year Ralph B. Dorr went around the world to get first hand information on the automobile business for the Dorr Motor Car Company. He covered the Orient, Australia and Africa, then returned to Paris, where he is in charge of the foreign business of the company.

We Are Exhibiting
**ANCHOR
WINTER
TOPS**
also
**ANCHOR
TAXI CAB
and
LIMOUSINE BODIES**
at the
**NEW YORK
AUTO SHOW**
GRAND CENTRAL PALACE
Booths D 177-179 (4th floor)
January 8th to 15th
GEORGE W. COPP CO., Inc.
Formerly
518 West 35th St., New York.
New Address
14th Street & Van Alst Ave.
Long Island City
Phone—Hunters Point 3830.
General Auto Top and Body
Equipment, Painting.



BUICK

BUICK, THE FIRST PLACE CAR. SMASHES ALL SALES RECORDS TO SMITHEREENS

The honor of First Place in all National Automobile Shows has been awarded to the Buick Motor Company, because the value of Buick production is greater than that of any other exhibitor. During the last twelve months Buick has smashed all records. America has approved by purchasing hundreds of millions of dollars' worth of goods marked "Buick." The New York Branch delivered for cash during October, November and December 2,538 Buick automobiles, valued at \$5,234,024.38, breaking all previous October to January New York records. For years we have built and sold more six cylinder automobiles than all other well known builders of Sixes combined.

WE HAVE FAITH IN AMERICA—OUR FELLOW-MEN

1921 will be a greater Buick year than any previous one. There has never been a time when America could so well afford to do everything normally and sanely. A necessary article of great merit, that everybody wishes for and 20,000,000 Americans will not be without, is always in demand. You are alive today, but not forever. Automobiles save more time than all other inventions, more lives than doctors, create greater wealth for their owners than any other manufactured article and are the last instrument of utility and pleasure you will give up. We are optimists, we have no use for the pessimist, be his position high or low.

EVERY DETAIL OF THE 1921 BUICK HAS BEEN IMPROVED

The seven beautiful 1921 models are of entirely new body design. The World's famous Valve-in-Head Motor, always the most powerful and economical of its size, is now the quietest and staunchest in existence. Cord Tires are regular equipment. Buicks have more improvements than any cars exhibited in five years.

YOUR ORDER AND DEPOSIT ARE SAFE WITH US

Over two million red-blooded American men and women have driven nearly seven hundred thousand Buick cars hundreds of millions of miles over hills and all kinds of roads with certainty and economy. In terms that have been heard around the World, they and their friends vouch for Buick reliability, long life and economy. They have made Buick's reputation—Buick the First Place Car. The time has passed to purchase 1920 cars even if they are carried over and called 1921 models. You are entitled to 1921 improvements, fresh tires and batteries and the 25% greater investment value of a 1921 model. Buick new car values and used car values are above all others. For years many other companies have been prosperous only because Buick could not supply tens of thousands who wished to purchase. Most of our Spring deliveries are contracted for by regular customers, their friends and those who tell us second choice cars won't do. If you wish a Buick this Spring we are giving you fair warning, order now at the Show.

AUTHORIZED BUICK SERVICE

Wherever you drive a motor car in this great country, you will see Authorized Buick Service signs in every city and nearly every hamlet. They are emblems of satisfaction. There you will find intelligent, courteous, trained men and Buick repair parts. They are the tourist's friend, the Buick owner's guarantee against ignorance and dishonesty. They are authorized by the Buick Motor Company. In Greater New York and Newark, there are sixteen Authorized Service Stations to give your Buick car the most expert service work. The service and sales knowledge we have gained while building up the greatest retail automobile business in America is at every Buick owner's command and is worth every prospective purchaser's most thoughtful consideration.

A BUICK HOLDS THE WORLD'S OFFICIAL MILEAGE RECORD—272,000 MILES

World's Largest Builders of Six Cylinder Automobiles

BUICK MOTOR COMPANY
BROOKLYN NEW YORK NEWARK
358 Livingston St. Broadway and 55th St. 497 Broad St.

FACTORY—FLINT, MICHIGAN

WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

When all is said and done, motorists today look for these three essentials in the purchase of a car: Serviceability, economy and pride-inspiring appearance. They know that the development of one quality cannot long excuse the absence of another.

The presence of each, fully developed, in all models of The Dixie Flyer is neither accidental nor theoretic. It is the natural outcome of a forty-year experience in the study of road requirements, the ability of nationally recognized engineers to build a car equal in all ways to cope with them, originality in body design and skill in execution of coach work.

Owners have frequently said in substance that they consider The Dixie Flyer not so much a piece of inanimate mechanism as a faithful servant possessing an inherent tendency toward continual usefulness and adaptability to family routine.

Economy of maintenance exceeds the common expectation in the purchase of a medium weight car. It is apparent not only in surprisingly low fuel consumption but also in longer tire mileage and slower depreciation.

The distinguishing grace, quiet luxury and beautiful finish of Sedan, Coupe, Touring Car and Roadster with the more daring smartness of the Speedster are everywhere accepted.

Nationally Known Units and Refinements That Contribute to Dixie Success.

Herschell-Spillman Motor, Hot Spot Manifold, Eiseman Magneto, Borg & Beck Clutch, Full Floating Axles, Stromberg Carburetor, Grant-Lees Transmission, Two-Wire System, Willard Battery. Durable and rich in finish, genuine leather upholstery, bullet lamps, Macbeth lenses, nickel windshield standards, frames and radiator shells.

See The Dixie at the Show—Ride in It—Drive It.

Words alone cannot do justice to the threefold essential advantages in Dixie Construction and performance. Only through actual riding and driving can you fully know the comforts—mental and physical—the economy and pride to be derived from ownership. All five models are on display at the Automotive Show, Booth C-3, Third Floor, Grand Central Palace. Kentucky Wagon Mfg. Co., Incorporated, Louisville, Ky.

